



# *Traffic Flow Management Wrap-up*

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Airspace Systems Program  
2011 Technical Interchange Meeting  
March 28–31 2011  
San Diego, CA



# Key Findings from 2010

- San Francisco Stratus research
  - Objective was to simultaneously consider weather modeling, traffic flow modeling, and operational practices
  - NASA developed vision, problem statement, and selected NRA
- Analysis complete: shows promise to save \$4.8M/year (\$9.6M with line of flight consideration) and 19% reduction in delayed flights (1092 hours/year)
- Stand alone, web-based decision aid was created and can be accessed through NWS website (provided to NWS and FAA)
- Operational shadow assessment being planned with the FAA for the 2011 stratus season

CONSENSUS FORECAST				
16z	Approach	Clear At	19:02	GMT
Model	Quality	Run	Good	
Probability of Clearing By:				
17Z	18Z	19Z	20Z	
5%	10%	50%	90%	
COMPONENT FORECASTS				
Run	Model	Fcst	Wgt	
16:00	COBEL	19:01	0.34	
16:00	Local	17:17	0.28	
16:00	Regional	18:43	0.14	
16:00	Satellite	20:35	0.34	
Hourly Forecast Summary				
Model Forecast Details				
15Z GDP RECOMMENDATIONS				
15Z Consensus Forecast		> Clear at 17:25 GMT		(GO00)
Traffic Data		15:18 GMT		
		Current	Alt-1	Primary
Start Time		15:30	15:30	<b>15:30</b>
End Time		18:59	18:14	<b>18:29</b>
Scope		12West	12West	<b>12West</b>
AAR	45@	18:00	16:45	<b>17:30</b>
	60@	19:00	17:45	<b>18:30</b>
Risk		*	*	*
Exceed Max Queue		1%	9%	6%
Benefit		\$\$	\$	\$\$
Delay Reduction		24%	17%	20%
27%				
Expanded statistics				



## *Key Findings from 2010*

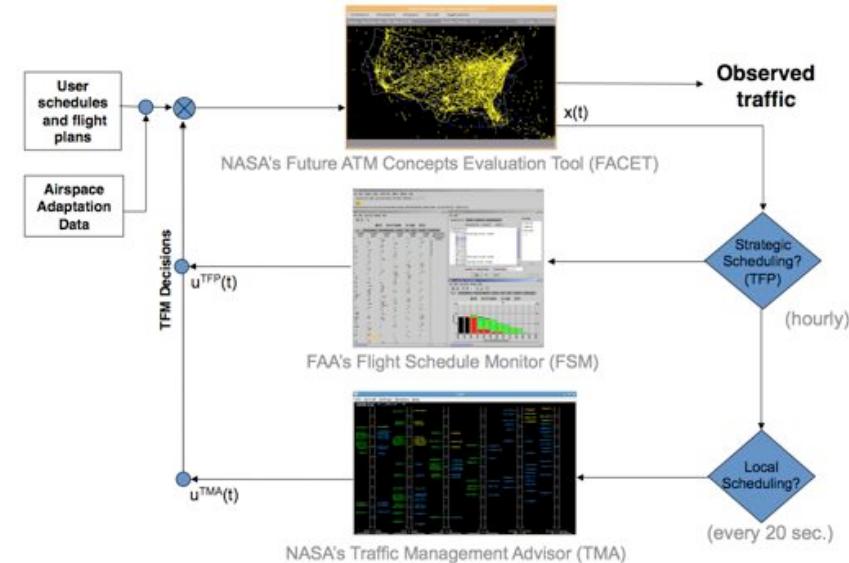
- Optimization-based scheduling models can reduce NAS delays by over 40% compared to current operations
- Weather information must be translated, not simply displayed, to achieve maximum benefits
- Failure to consider the integrated impact of traffic management initiatives can lead to over 50% of flights being “double delayed”, as commonly occurs in current day operations (DFW and ATL Case Studies)



# Integration Opportunities

What are the most important TFM integration opportunities to pursue?

- Weather Integration
  - Integration with existing FAA Decision Support Tools
  - Integration with NASA simulation systems (e.g., FACET)
- TFM + Arrival Scheduling
- TFM + DAC
- Others?





## Future Research Activities

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### High Technical Readiness Level Activities:

- Are there HITLs that we should consider running?
- Are there opportunities for operational engineering or shadow assessments?

### Low Technical Readiness Level Activities:

- Weather translation models
- Environmental impact modeling
- Scheduling and routing
- Flight prioritization techniques